

Observing Non-Gaussian sources in Relativistic Heavy-Ion Reactions

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Abstract

We examine the possibility of extracting non-Gaussian sources from two-particle correlations in relativistic heavy-ion reactions. Non-Gaussian sources have been predicted in a variety of model calculations and may have been seen in various like-meson pair correlations. We investigate pion, kaon, and proton sources from the p-Pb reaction at 450 GeV/nucleon and from the S-Pb reaction at 200 GeV/nucleon studied by the NA44 experiment. Both the pion and kaon sources from the S-Pb correlations seem to exhibit a Gaussian core with an extended, non-Gaussian halo. We also find evidence for a scaling of the source widths with particle mass in the sources from the p-Pb reaction.
